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MUSIC OF THE WILD.

PROCESSIONS of the fairies long ago were always accompanied by the sounds of music:

'Their oaten pipes blew wondrous shrill,
The hemlock small blew clear;
And louder notes from hemlock large
And bog-reed struck the ear.'

—*Ballad of Tamlane, Border Minstrelsy.*

The bridles of the elfin steeds were also heard to ring, as the troops, seen or unseen, dashed past the alarmed mortal. It is just possible that there may have been a natural foundation for this feature of the fairy superstition, as has been proved to be the case with many other once-supposed supernatural things. There is at least a class of natural sounds, of a somewhat obscure character, which appear not unlikely to have been mistaken in a superstitious age for fairy music. We have been assured, though only on hearsay authority, that a few years ago the people of a small district in Roxburghshire were kept in a state of excitement for several days by sounds, as of music, wandering over the country, for which no one could account, though all heard it. In 1840, some moaning sounds in the Ochil Hills in Perthshire, attracted scientific attention, on the occasion of an earthquake taking place at Comrie, a few miles off. The sounds may have been occasioned by earthquakes in both cases. It has indeed been remarked as probable that the Ochil Hills anciently acquired their name from sounds connected with the Comrie earthquakes, which are of notable frequency, being heard amongst them; for the Gaelic word for moaning, howling, wailing, is *ochain* or *ochail*.*

There is a fine descriptive passage in one of James Hogg's poems—

'That undefined and mingled hum,
Voice of the desert, never dumb.'

Many must have observed this indescribable sound, as they rested quietly and listened in lonely situations. It seems the very shadow of absolute silence. The author of the 'Journal of a Naturalist' apparently alludes to it when he speaks of the 'purely rural, little noticed, and indeed local occurrence, called by the country people *humplings in the air*,' as annually to be heard in the sultry forenoons of July in one or two fields near his dwelling. 'It is generally,' he says, 'in some spacious open spot that this murmuring first arrests our attention. As we move onward, the sound becomes fainter, and by degrees is no longer audible.' He thinks it must be owing to swarms of bees elevated to such a distance in the air as to be invisible. Another writer demurs to this explanation; 'for,' says he, 'it so hap-

pens that in the bosom of a thick wood, where there is a space partially opened, though still a very narrow and confined spot, in days precisely such as he describes them—that is, sultry, and in the middle of summer, when the air is calm—I have often paused to listen to a similar aerial humming, appearing to result from some unseen power close at hand, which for several years I hesitated not to attribute to insects; an opinion I felt compelled, though reluctantly, to give up, since, after the most diligent search, I could never detect the presence of any collected body sufficiently numerous to account for the effect.'

Humboldt, in his Personal Narrative, speaks of subterranean noises, like those of an organ, heard towards sunrise by those who sleep upon the granite rocks on the banks of the Orinoco. This will recall to the reader the celebrated statue of Memnon in Egypt, which at sunrise emitted musical sounds—a fact attested by so many respectable writers of antiquity, that there seems no good reason to doubt it. A frozen bay described by Mr Head (brother of Sir Francis) in his 'Forest Scenes' presented similar phenomena. After speaking of the loud noises produced by the cracking of the ice, he goes on to say—'A dreary undulating sound wandered from point to point, perplexing the mind to imagine whence it came, or whither it went, and whether aerial or subterranean; sometimes like low moaning, and then swelling into a deep-toned note, as produced by some Æolian instrument—it being in real fact, and without metaphor, the voice of winds imprisoned in the bosom of the deep.' He found this recur whenever the temperature fell very suddenly. It seems a phenomenon nearly allied to what the Welsh and Scotch call the *soughing* of the wind. The writer already quoted by his initials E. S. says—'On turning to a map of Cheshire, it will be seen that from within a short distance eastward of Macclesfield, a range of hills extends in an irregular curve to the north-west, forming a sort of concave screen, somewhat abruptly terminating over the comparatively level plains of this part of the county. In different parts of these, as well as in more elevated spots, at the various distances of from four to six miles or more, at certain seasons of the year, usually in the early part of spring, when the wind is easterly, and nearly calm on the flats, a hollow moaning sound is heard, familiarly termed the "soughing of the wind," and evidently proceeding from this elevated range, which, I should add, is intersected with numberless ravines or valleys; and I have no doubt that when the atmosphere is in that precise state best adapted for receiving and transmitting undulations of air, a breeze, not perceptible in the flat country, gently sweeps from the summits of the hills, and acts the part of a blower

* Proceedings of Geological Society, No. 91, 1842.

* 'E. S.' in Jameson's Journal, March 1830.

on the sinuosities and hollows, or cloughs, as they are called, which thus respond to the draught of air like enormous organ-pipes, and become for the time wind-instruments on a gigantic scale.

We take leave to borrow another beautifully-related observation from this writer:—"In the autumn of 1828," says he, "when on a tour through Les Hautes Pyrénées, I formed one of a party, quitting Bagnères de Luchon at midnight, with an intention of reaching the heights of the Porte de Venasque, one of the wildest and most romantic boundaries between the French and Spanish frontier, from the summit of which the spectator looks at once upon the inaccessible ridges of the Maladetta, the most lofty point of the Pyrenean range. After winding our way through the deep woods and ravines, constantly ascending above the valley of Luchon, we gained the Hospice about two in the morning; and after remaining there a short time, proceeded with the first blush of dawn to encounter the very steep gorge terminating in the pass itself, a narrow vertical fissure through a massive wall of perpendicular rock. It is not my intention to detail the features of the magnificent scene which burst upon our view as we emerged from this splendid portal, and stood upon Spanish ground—neither to describe the feelings of awe which rivetted us to the spot, as we gazed, in speechless admiration, on the lone, desolate, and (if the term may be applied to a mountain) the ghastly form of the appropriately-named *Maladetta*. I allude to it solely for the purpose of observing that we were most forcibly struck with a dull, low, moaning, Æolian sound, which alone broke upon the deathly silence, evidently proceeding from the body of this mighty mass, though we in vain attempted to connect it with any particular spot, or assign an adequate cause for these solemn strains. The air was perfectly calm. The sky was cloudless, and the atmosphere clear to that extraordinary degree conceivable only by those who are familiar with the elevated regions of southern climates. So clear and pure, indeed, that at noon a bright star which had attracted our notice throughout the gray of the morning still remained visible in the zenith. By the naked eye, therefore, and still more with the assistance of a telescope, any waterfalls of sufficient magnitude would have been distinguishable on a front base, and exposed before us; but not a stream was to be detected, and the bed of what gave evident tokens of being occasionally a strong torrent, intersecting the valley at its foot, was then nearly dry. I will not presume to assert that the sun's rays, though at the moment impinging in all their glory on every point and peak of the snowy heights, had any share in vibrating these mountain chords; but on a subsequent visit, a few days afterwards, when I went alone to explore this wild scenery, and at the same hour stood on the same spot, I listened in vain for the moaning sounds: the air was equally calm; but the sun was hidden by clouds, and a cap of dense mist hung over the greater portion of the mountain."

There is no small difficulty in accounting for such sounds. They may be connected with changes of temperature; but how? Sometimes they may be produced at a great distance, but rendered audible by a form of the ground favourable for the collection of the rays of sound, so to speak. The wind is doubtless the instrument in many instances. Earthquakes, as we have seen, are another source of uncommon sounds, though how these should be produced in such circumstances we cannot say. Amidst this difficulty, it is satisfactory to refer to one class of such sounds for which an explanation has been attained.

On the east coast of the Bay of Suez, about three hours from Tor in Sinai, there is a sandstone ridge, at one part of which, where it is about 150 feet high, there is a steep acclivity named Nakuh, having much loose sand laid against it, the produce of the upper part of the hill. When the traveller ascends this sandy cliff, his ears are saluted with a sound which at first resembles the tone of an Æolian harp, then that of a hum-

ming-top, and finally becomes so loud, that the earth seems to shake. After many speculations about the cause of this phenomenon, the matter was set at rest by the distinguished naturalist Ehrenberg. "He ascended from the base of the hill, over its cover of sand, to the summit, where he observed the sand continually renewed by the weathering of the rock; and convinced himself that the motion of the sand was the cause of the sound. Every step he and his companion took caused a partial sound, occasioned by the sand thus set in motion, and differing only in continuance and intensity from that heard afterwards, when the continued ascent had set loose a greater quantity of sand. Beginning with a soft rustling, it passed gradually into a murmuring, then into a humming noise, and at length into a threatening of such violence, that it could only be compared with a distant cannonade, had it been more continued and uniform. As the sand gradually settled again, the noise also gradually ceased." Mr James Prinsep, who also inquired into these sounds, states that the effect is produced by 'a reduplication of impulse, setting air in vibration in a focus of echo.' It is, in short, a phenomenon in acoustics.

There is a similar marvel at Reg-Ruwan, about forty miles north of Cabool, towards Hindoo Koosh, and near the base of the mountains. To quote the description of Sir Alexander Burnes:—"Two ridges of hills, detached from the rest, run in and meet each other. At the point of junction, and where the slope of the hills is at an angle of about 45 degrees, and the height nearly 400 feet, a sheet of sand, as pure as that on the sea-shore, is spread from the top to the bottom, to a breadth of about 100 yards. When this sand is set in motion by a body of people sliding down it, a sound is emitted. On the first trial we distinctly heard two loud hollow sounds, such as would be produced by a large drum. On two subsequent trials we heard nothing, so that perhaps the sand requires to be settled and at rest for some space of time before the effect can be produced. The inhabitants have a belief that the sounds are only heard on Friday; nor then, unless by the special permission of the saint of Reg-Ruwan, who is interred close to the spot. The locality of the sand is remarkable, as there is no other in the neighbourhood. Reg-Ruwan faces the south, but the wind of Purwan (bád i Purwan), which blows strongly from the north for the greater part of the year, probably deposits it by an eddy. Near the strip of sand there is a strong echo; and the same conformation of surface which occasions this is doubtless connected with the sound of the moving sand."

An explanation being supplied in this case, we may hope to see all mysteries of the same kind in time cleared up.

FROM THE PIECE TO THE PATTERN.

PASSING through a couple of green gates at the bottom of a narrow street in the outskirts of Manchester, and very near the terminus of the North-Western Railway, we are at Hoyle's printworks in Mayfield, which is equivalent to saying that we have entered upon a scene displaying some of the finest and most scientific processes connected with the preparation of cotton for human apparel. 'Hoyle's prints' has become a household name, known alike to the wearer of the most exquisite and delicate of patterns, and to her who, whether for a tidy apron, or for a work-a-day dress, or for a Sunday gown, can pick out the genuine 'Hoyle's' out of a dozen imitations, with unerring accuracy. Although that forms by no means the sole description of article produced by this immense firm, yet the name is generally associated with the idea of some homely, useful, and cheerful lilac-patterned dress. The peculiar excellency of the establishment is un-

doubtedly this simple, unobtrusive, but indelible class of patterns, or 'style;' and as the demand for patterns of this sort has become as regular as the demand for apparel itself, continuing unaltered by the smiles of fashion or the frowns of caprice, it is probably correct to found upon the fortunate discovery of this dye the splendid reputation of these extensive works.

Mayfield is a little town of itself, and the various buildings, works, and reservoirs occupy no inconsiderable space in this portion of the City of Steam—the title being nowhere so well earned as here, where, from the open roofs of the dye-houses, torrents of steam soar up into the air. Upon the territory of the firm, in fact, a considerable number of cottages, for the workmen and their families, cluster together; and we were gratified to enter a capital school, well filled with boys and girls, the children of this print-village, so to write. The entrance is effected under a handsome clock-tower, forming at its base the porter's lodge. Crossing an open area, the visitor's attention is first caught by the large water-reservoirs placed on the boundaries of the premises. These are filters on a great scale: the plan is peculiar to these works. A great essential in securing a good and brilliant dye is to get water as free from iron and lime as possible. For this purpose sulphuric acid is often intentionally added, in small quantities, to precipitate the lime. The same end is effected in this instance by conveying all the water used in the establishment, by an aqueduct, from the engine-pump to the highest of the reservoirs, and there adding to it the refuse from some of the dye-vats. By this means all the iron and lime are deposited, and the water, descending through several beds of sand, &c. in the different filters, at length enters the reservoir, from whence it is drawn for the use of the dye-house.

Having now fairly entered the busy spot, we must proceed according to order, and to that end must first enter that portion of the works which is called the White Room, from the circumstance that the bleached 'pieces' are first brought to this place, to be submitted to one or two inspections, &c. before proceeding to the print-room and dye-house. In one division of this place was the examiner—her duty being to see that no knotty portions exist in the cloth, removing them with a scissors of peculiar form. We were amused at the rapidity and methodism with which the woman, by an alternate glance of the eye to one and to the other edge of the cloth, instantly detecting the least imperfection, removing it, and, machine-like, going on as before, pushing yard after yard over the board in front of her. In the next room were a number of females, seated in different portions of it, with a large number of pieces of the cloth before them, plying their needles in sewing them together at an extraordinary rate, and with a peculiarity of knack only to be learned by long experience. Fifteen pieces is the average number sewn together at their ends, making on the whole, if we reckon each piece at about 30 yards long, a length of cotton cloth of about 450 yards! The pieces are then folded up, and conveyed to a third department in this building. If the reader would be at the pains to examine the edges of the calico as thus folded, he would find them very uneven, many probably bent in, and creased. Unless these creases were removed, it would be next to impossible to print a dress evenly, and in all parts alike. The means of removal is very simple, but peculiar. A powerful and athletic man lays hold of the cloth, and standing before a stone placed at a particular angle, whirls the cloth in the air, and strikes it with a peculiar twist upon the edge of the stone. After beating the edges thus for a few times, they will be found, on examination, to be all smooth, and every crease taken out. One active

fellow told us he could despatch 600 of these compound pieces as his day's work. The calico is yet in folds, and retains a certain amount of dust and fine 'flue,' which must be removed before it can be fitted to receive the pattern. The reader must therefore accompany us, as, following the steps of our companions, we entered a very dusty and bustling apartment. Four or five curious machines were here arranged, and, in connection with the steam-engine shafts, were in rapid action. The end of the folded calico was taken up, and partly rolled upon a wooden roller. On the machine being set in motion, the cloth was wound up on this roller, at each end of which were heavy weights, by which means the roll acquired almost the solidity of wood; and in its passage it had to cross a couple of bars of iron, grooved diagonally, for the purpose of taking out any remaining creases, and also over a circular system of brushes, which revolve with great rapidity, and sweep every lightly-adherent particle from off the face of the fabric. The whole process is effected with a degree of rapidity which much surprises the uninitiated in the marvels of mechanism; and that which was formerly a slow, imperfect, and tedious process, is now effected in the space of a very few minutes with the utmost rapidity and certainty of result.

The roll of cloth is hurried to the print-room: thither let us accompany it. This is a beautiful new building, of considerable size, and some elegance of appearance. It forms a distinct division of the works, and its wonderful mechanisms are actuated by a distinct motive power from those of other portions of this extensive establishment. Ascending a short flight of steps, our ears already greeted by the tumultuous moving sounds which vibrated through the half-open door, we entered, and had displayed before us such a stirring prospect as we have rarely beheld. On the left-hand side, looking down the room, were eighteen or twenty of those beautiful inventions, the cylinder-printing machines, all in full work. We beheld our cloth-companion carried to the back of one, partly unwound, the machine set in action, and lo! it rises from the iron bosom of the apparatus a printed fabric: it passes through the ceiling, and we think it lost for ever to view, when, at the other side of the room, see the same piece descends, hot and dry, and, as one might think, ready for use, but not nearly so yet. Conceive of eighteen machines all performing the same evolutions; of eighteen fabrics entering them without spot or wrinkle, emerging covered with figures, spots, and marks of various hues and designs; of their again soaring up out of sight, and once more descending in smooth folds on the other side, and an imperfect idea of the singular scene before us may present itself. As the machines before us are, without question, the most important mechanisms in the whole of this interesting manufacturing process, they deserve to be fully understood; and that, we believe, may be very easily accomplished by a little attentive consideration of the following analysis of one of the most modern of them. There is, then, an upright framework of cast-iron, within the two sides of which the printing apparatus is contained; externally to it is the gear which connects the rollers, &c. with the shafting running under the floor; in the centre of the frame is a series of rollers, the most important of which is a copper cylinder, the lower side of which dips into a trough containing the colouring paste; at the back of the machine is the rolled cloth preparatory to printing; and rising from its front, the same cloth is seen imprinted with the peculiar device, and resting on an endless web of Mackintosh fabric, enters the room above by a longitudinal slit in the ceiling. To trace the cloth in its proper progress, we will commence with it behind. Unwinding from the roller, it makes a slight descent, and then enters into the machine between an under copper cylinder, the surface of which is engraved with the pattern—the under part of it dipping into the colour-trough, receives its charge of colour by that means—and an upper roller of wood, the surface of which is covered by the Mackintosh web: these

rollers being tightly screwed together, exercise great compression upon the cloth as it passes between them, and force it to take up every vestige of colour from the depressions in the surface of the cylinder. Appearing in the front, it is now found to have taken an accurate impression of the design on the copper, and its further stages of progress will come presently under our notice. At the side of the room are a number of vices, at which the machine attendants will be frequently seen at work, smoothing and straightening a long steel blade, like—if we may venture to draw the comparison—what ladies call, we believe, a 'busk'; a kind of iron substitute for the whalebone in stays. Reader, without that simple blade, all this costly mechanism would be utterly valueless, at least for printing purposes: that is the doctor. If the copper cylinder were allowed to dip into the colour, and then to be pressed against the tissue, the result would be, that a homogeneous broad band of the colour would remain on the fabric. What is wanted is, to remove all the colour from the surface of the engraved metal, yet to leave all the engraved portions charged with colour. Manifestly no ordinary wiper would or could effect this end. The smooth sharp edge of the doctor does it completely. The blade receives an alternate lateral motion by a crank; and resting, as it does, at a certain angle upon the surface of the cylinder, it smoothly scrapes away every particle of surface-colour in the most admirable manner. It is said to have received its odd name from the expression of surprise of a workman, who, seeing the inventor, after many trials of other methods of getting rid of surface-colour, take up a long-bladed knife, and, to his astonishment, finding it answer the purpose excellently, ejaculated, 'You have doctored it now, sir!' Each machine has two of these ferocious medical attendants: one—the one in question—is called the 'colour-doctor'; the other, which is placed in front of the cylinder, and is intended to free it from any cotton filaments which may have got upon it during the passage of the fabric over it, has the more congenial appellation of the 'lint-doctor.'

Having, as we trust, made the construction of the single-colour cylinder-printing machine sufficiently clear, we shall now be able to comprehend, without difficulty, that yet more remarkable, and, at first sight, highly-complicated machine, which prints five, or even six colours, at the same time! If the reader can imagine that, instead of passing over one cylinder, the cloth passes in succession over one, two, three, or more, each dipping in troughs containing different colours, and each furnished of course with the doctor, he will have all the essentials before him of the compound machine. As may well be imagined, the paramount difficulty here is so to engrave the different patterns on each cylinder as that each spot of colour shall drop into its right place; and no ordinary exercise of ingenuity and patience is called for in the adjustment of the machine in the first instance. It is a beautiful spectacle when seen at work. You behold the smooth band of cloth enter in snowy purity, you watch it swiftly passing in a zig-zag direction over a number of cylinders, each charged with different colours, and each kept clean by its busy 'doctors,' until at length it comes out covered with a pretty pattern, in which five or six colours glitter with most attractive brilliancy. The metamorphosis is as rapid as it is complete, from the unsullied piece of calico to the almost perfected pattern dress.

Stepping across to the opposite side of the room, we see, as we have said, the printed cloth come streaming down at a great rate; and, curious to say, it is laid in regular folds by machinery! It passes between a pair of wooden rollers placed at the end of a long swinging frame of iron; and this frame being made to swing to and fro by a crank, it directs the cloth passing between the rollers into similar folds, thus disposing what would otherwise be inevitably a confused heap of calico, requiring the constant supervision of one man to prevent its getting all over the floor, into smooth and even folds, in which form it lies, without irregularity, and can be easily removed by an attendant when the whole piece is printed. There are, it is true, minor ingenuities, but we delight to

mark them as indicative of the pervasion of a system of refined mechanism even to the most trifling particulars. We have thus seen, as far as this room is concerned, the beginning and the end of the piece. Ascending up stairs, we shall be able to see the intermediate process of 'drying.' A few yards, and we are in a tropical climate! A blast of hot, suffocative air strikes the face, fills the clothes, and makes the skin tingle all over, and a few minutes must elapse before the impulse to plunge back again into the comparatively cold air of the room below can be fairly mastered. Then the heat ceases to be unpleasant—at least it was so with us. The evolution of this heat is due to the immense range of steam apparatus which fills the room from one end to the other. It consists of tall upright frames of cast-iron, to which are attached a number of flat iron cylinders filled with steam. The printed cloth, rising through the floor, is made to lie flat on a series of these hot chests, over which it is drawn; until, descending again on the other side, it is found to be quite hot and dry, and passes once more through the floor to the folding apparatus.

A very singular and interesting machine calls us to stop before finally quitting the printing-room. The men call it the 'gas-blue machine.' As we had the privilege of witnessing the erection and first working of one of these ingenious machines, we shall briefly describe it. Up to the point where the cloth enters the machine, its arrangements are precisely those of the ordinary cylinder-print engines. Just, however, above the colour-doctor, a horizontal pipe, perforated with many holes, lies close to the revolving cylinder; this pipe is in connection with a gas-supply pipe, and by its means gas is blown on to the cylinder charged with colour just before the latter comes in contact with the cloth. In front of the machine is a flat box, glazed like a picture frame: immediately that the cloth leaves the copper cylinder, it enters between two tight lips of caoutchouc into this box, and may be seen through the glass moving upwards into a chest above, where it is rolled up—not passing into the drying-room, as in other cases. By ample pipes connected with a gas-meter, this flat box and the larger trunk are kept filled with an atmosphere of gas—the ordinary carburetted hydrogen of the streets—which, escaping in small quantities, renders its presence very perceptible to the senses of the bystander. At the top of the larger chest is an escape-valve, by which the gas is allowed at intervals to flow into the external air, to give place for a fresh quantity. This machine, which has been patented by Mr Woodcroft, is intended to produce a most beautiful and indelible blue colour on the print. The paste is of a peculiar kind, undergoing a certain decomposition when brought into contact with coal gas, and the result being the production of a very fine and lasting blue. The exact chemical processes which are concerned in this singular machine are not permitted to be divulged. It is very singular to see it at work, and to behold through the pane of glass the cloth, erst so fair and pale, deepening into a rich blue as it passes slowly upwards through the gaseous atmosphere, with the appearance at the same time of some pretty simple pattern on it. We believe that this invention, which is quite recent, has already proved a most valuable aid to the resources of the calico printer.

The rate at which the cylinder-printing machines execute their task is surprising when looked at in the aggregate. Some machines will actually print a mile of calico in an hour! or, to make it more intelligible to some of our fairer readers, each machine will print *three cotton dresses* in a minute! Supposing that fifteen of the machines in this room were to work uninterruptedly for only ten hours each day, and for six days in the week, they would be able to print cotton dresses in one such week for one hundred and sixty-two thousand ladies! How many, then, in a year! We believe the actual number of miles of calico printed by this eminent firm alone in a single year exceeds ten thousand, more than sufficient to measure the diameter of our planet with! The whole of the machines in this large apartment require the undivided energies of a couple of the most beautiful steam-engines

we have ever seen—on the locomotive principle—high-pressure boilers, and horizontal cylinders, each engine being estimated at twenty-five horse power. The engine-room was itself a miracle of neatness, nay, even of elegance: but we have more pressing claims on our attention.

A man comes, and taking up a heap of the folded prints, starts off for another department. Following hard in his wake, we entered the 'ageing-room'—such is really its odd-sounding title. The print is then handed over to a number of boys, who, taking the one end of it, hang it in folds upon hooks placed at short intervals apart. In this way the whole of an extensive room was converted, as it were, into a great laundry, the windows at the sides being all open, to permit a free current of air to pass through the entire space. On examining the pattern upon some pieces which have ended their stay, it is found to have undergone a considerable change of hue, from a pale fawn to a sort of rust colour. This is due to the action of the air upon the mordant—in this case usually a salt of iron. The intention of the ageing process is to produce a chemical decomposition upon the substance of the mordant, so as to induce its deposition upon the surface of the cloth in the form of an insoluble sub-salt, the better to endure the future operations to which the fabric is about to be exposed. Some care is necessary in this apparently simple process to effect the equable decomposition of the mordant all over the surface of the cloth; and we were assured by a practical man that occasionally the passage of the air across the fabric may be noted by the deeper colour of the outer folds, and the paler hue of the inner. The cloth takes four days to become, in dyers' language, properly 'aged.'

Accompany us now, gentle reader, to a region of mists, and rising damps, and fogs, on whose warm wet wings is the odour of madder and other dyes, to a place where dim spectres are to be seen wheeling about barrow-loads of reeking dresses; where the sharpest sight cannot for a while see a yard before the eyes; where there is such a dashing about of scalding water, such a clattering of deep-mouthed mechanism, and such a din and terrible sensation in the air, as if something were going awfully wrong, that you may be glad your companionship does not stretch beyond this page. Such is the 'beck' or dye-house into which we have now entered. A pile of calico from the ageing-room is cast at our feet; before us is a long wooden cistern, three parts filled with water, which is kept boiling by the influx of steam at the bottom. Just above it, and placed horizontally along it, with a bearing on each end of the cistern, is a wince or frame of wooden bars, which is made to revolve by machinery. Into the cistern are put a gallon or two of the manure from cattle. The cloth is then put in, and one end being laid over the wince, the latter being also set in motion, the cloth is seen to be wound over from one side to the other of the cistern, of course producing in its rapid progress no ordinary amount of splashing about. This, which is called, in the not-over-refined language of the dye-house, 'the dunging process,' is twice repeated. It is a most curious fact that, until lately, no rational explanation of this operation could be offered, nor was any substitute for the manure discovered. Even now the *modus operandi* is by no means clear. It appears certain that the manure owes its efficacy to its phosphates of soda and of lime, which appear to act in a peculiar manner, so as to remove the superfluous portions of the mordant from the cloth; and what is called 'dung substitute,' consisting of these two ingredients, is now largely employed in its place: we must mention, however, that it is a patent article. The cloth is then taken to another part of this busy place, and is washed by a similar wince and cistern, containing pure hot water, and is by this means freed from all impurities contracted during the last processes. It is thence removed to the 'dye-beck': this is an apparatus in all respects similar to the last—consisting of a revolving wince and cistern, which in this instance is filled with a boiling decoction of the dye, such as madder; and after whirling and splashing about in this hot fluid for a couple of hours, the cloth is then removed. It has now lost its

snowy whiteness, and has assumed a deep red hue, verging on purple; and a pattern can scarcely be detected on it, for the whole surface appears almost uniformly coloured. But excepting in the mordanted parts—that is, in the pattern which has been printed with a paste of 'mordant'—all this colour is fugitive: in these a true chemical union has taken place between the colour and the mordant, and the colouring matter has been deposited in the fibres of the cloth in the form of an insoluble precipitate; consequently no future washing can get it out, for the colour is, as it were, locked in within the fine tubes which compose the structure of the fabric; hence, indeed, the origin of the term *mordant*, or *biter-in*. Much might be said, and a vast amount of interesting matter could be adduced, upon the philosophy of dyeing, but it would swell this article to a most unreasonable length to introduce it. The grand principle has been just stated, and is easily extended to other instances; while for a variety of interesting chemical phenomena exhibited in the different processes, the reader may be referred to any of the valuable works on 'Applied Chemistry.'

The superfluous colour has now to be washed out, and a most singular machine is called upon to fulfil that office. The appropriate title for this immense washing-engine is the 'dash-wheel.' Along one side of a separate house, which might be termed the laundry, five or six of these dash-wheels are placed. They consist of large circular boxes, seven or eight feet in diameter, the interior of which is divided by boards into four compartments, with a large round hole looking into each of these divisions. These wheels are placed upon transverse axes, which are in connection with moving gear, and cause the whole frame to revolve round and round. The cloth is put into one of these compartments, a jet of pure water is allowed to flow into the interior of the machine near its centre, and the whole is then set in motion. The cloth is thus dashed about with considerable violence, while all the time a copious current of pure water flows over it; and when taken out, it is found to have lost a large portion, though not all, of its superfluous colour. It is taken back to the dye-house, and washed in a dilute solution of chloride of lime: this is called 'clearing.' The dash-wheel once more receives it, and now it is fit for apparel as far as colour goes. But it is reeking with water. This is expelled by a most ingenious contrivance called a hydro-extractor, or patent drying-machine. The dripping folds are put into a hollow circular wheel with a perforated margin; by means of speed-cones this is made to revolve with a gradually-accelerated motion until its revolutions reach a frightful rapidity. On stopping it, after a few minutes, it is found that the centrifugal force has made every particle of water fly from the cloth, and it is almost as dry as tinder! The cloth is then passed between two wooden rollers, revolving in a trough filled with starch: it goes up what is called a 'Jacob's ladder,' an endless band with shelves on it, into the steam-drying room. In this place is a large apparatus consisting of a number of cylinders filled with steam, under and over which the piece is wound, until it comes out smooth and dry. It is then folded, put in a hydraulic press, and tied, and the impatient horse in the dashing-cart outside receiving his load, carries it from Mayfield to the railway, and the railway scatters the wonderful production to the very ends of the earth.

This is, however, but a sketch of the processes concerned in the production of the very simplest patterns: cloth which receives patterns containing four or five colours, often goes through twenty or thirty different operations before it is finished, the number, complexity, and variety of which makes it a matter of astonishment, that the articles can be produced and sold under anything but a most extravagant price. The copper cylinders on which the pattern is engraved are stored up in a separate apartment of considerable size, said to contain cylinders to the value of £60,000! Adjoining it is also a long and even elegant room, in which the designers and gilders work. The works comprise a vast number of other departments, such as pumping, workshops, tool-repairing, smithies, madder-grinding, &c. the most vitally-

important of which is the extensive and beautifully-fitted-up chemical laboratory, where various experiments are conducted by a scientific chemist, and where all the dyes are prepared. This place contains a number of admirable machines for grinding, evaporating, mixing colours, &c. which it would be vain to attempt to describe. Suffice it to say, that it is the very heart of the whole manufacture, and upon the skill practically manifested here depends the entire success of the vast establishment. To give the reader a concluding idea as to the immensity of these works, it may be stated that they produce in a single year cotton dresses for a million and a-half of human beings!

AN INCIDENT IN THE PENINSULAR WAR.

ONE evening at our club we had the satisfaction of hearing Captain Marmaduke Smith relate an adventure in which he had been concerned in Spain, and which I shall try to give as nearly as possible in the language of the narrator. The reader is aware, for he has already made the captain's acquaintance, that he was somewhat of an oddity, and his story on this occasion was suggested by a hot discussion among us on the subject of patriotism.

'Don't tell me of patriotism,' said the captain: 'I have seen such queer exhibitions of the article in my day, that I am pretty well tired of hearing anything more about it. I could give you a story of Spanish patriotism that would astonish you; however, it's no use talking of the affair.'

'The story—let us have the captain's story by all means,' replied several voices. 'Come, captain, begin.'

'Well, well, if I must, I must, though I would rather have the matter forgotten. You of course all know that I am not exactly an Englishman?'

'Indeed! We always thought'—

'Never mind; I shall explain. My father was a Scotsman, my mother was an Irishwoman, and I was born in Gibraltar; so that you see I am an Anglo-Scoto-Irish Spaniard—a nondescript animal—though I hope not the worse subject of her Majesty, God bless her! By my father, who was a mariner at Gibraltar, I was sent to England for my education; and in consequence of my great merit—ahem!—a commission was easily got for me in the army. Well, that is a good while ago now. I served in the Peninsula, and was promoted—mark you, *not* by brevet. The Peninsula, you will observe, was a sort of native country to me—I spoke Spanish as fast as English. During one of the lulls in the campaign of 1811 I got leave of absence in order to visit Gibraltar. My father and only parent was lying dangerously ill, and requested my presence. Before I got to Gibraltar, he had died, leaving me his sole heir, which was a great consolation. When I came to look into his property, I found that it included a handsome schooner, the "Blue-Eyed Maid," which lay in the harbour, loaded with a capital cargo of printed cotton goods. The craft was waiting for a skipper, and none could be had. An idea struck me—"Why not turn skipper myself for the occasion?" The voyage was designed to be only as far as Bilbao—a regular smuggling transaction. I need hardly tell you, for all the world knows it, that Gibraltar is useful to us chiefly as a smuggling dépôt. The Spaniards want our goods; their government will not let them buy them in a regular way; and we, kind creatures, let them have them without giving any trouble to the customhouse. Now, here was a fine opportunity for me distinguishing myself as a contrabandista. My leave of absence having yet some time to run, I determined on taking the command myself; for although I had every proper confidence in Bill Jenkins the mate, yet knowing the weakness of human nature, and especially of smuggling human nature in such cases, I judged it might be as well to be my own cashier. On Christmas eve everything was ready for a start; the anchor was

atrip, and a fresh breeze was blowing from the south-west, which promised, if it did but last, a swift and pleasant run. I had just reached the bottom of the flight of rock steps leading to the signal station, where I had been to take a last look at the weather, when I was accosted by an old, odd, withered-looking gentleman—his hair and beard white as snow, and dressed in an old-fashioned grandee suit of velvet, with a short cloak over his shoulders, and a Spanish cocked-hat and feather on his head. He had a letter from a well-known merchant of Gibraltar, recommending him as a safe, trustworthy gentleman. His object, he explained, was to procure a passage in the "Blue-Eyed Maid" to Bilbao, then in the occupation of the French. As our rendezvous was a little to the south of the mouth of the Ebro, I had no difficulty in acceding, for a "consideration," to his request. An hour afterwards, we were on board, and I had an opportunity of more closely observing our new companion. He seemed a stunted, dried-up specimen of grandee pedigree and arrogance. He could not be less, judging from his palsied limbs, tremulous shrill voice, and shrunken features, than eighty years of age. His eyes, too, were filmy and dull, except when anything occurred to rouse him—an allusion to the French especially—and then a fire would glare out of the old decaying sockets—whether of heaven or the other place this story will best tell—enough to scorch one. He looked at such times for all the world like an Egyptian mummy animated by a fiend from the bottomless pit.

'We were soon under weigh, and cracking along at a spanking rate. The old Don kept very quiet, giving little or no trouble, except that some one or other of us was continually tumbling over him; for the restless creature would totter about the deck all day and nearly all night, muttering to himself, and every now and then irreverently flapping down on his knees. This conduct at last greatly scandalised Bill Jenkins, who argued that a man who threw out such an enormous number of that sort of signals must have an uncommon queer cargo to run; and Bill darkly hinted that if extra bad weather should come on, or any out-of-the-way mishap occur, he should know who to thank for it. Nothing, however, happened contrariwise till we were within a hundred miles of our destination, when, just as day broke, the look-out hand reported a strange sail on the weather-beam. All eyes and the only glass on board were immediately turned in the direction of the stranger, who finally proved to be a French war corvette. Bill Jenkins glanced at me, and then at the Spaniard, as much as to say, I told you what would come of having that precious rascal on board; and then made preparations to hoist every stitch of canvas the schooner could carry. But spite of all our exertions, the corvette gained rapidly upon us, and the prospect of a French prison became momentarily more and more distinct, and apparently inevitable. Our grandee seemed struck with utter madness: he stormed, raved, gesticulated, and execrated the advancing ship with a fury scarcely human! As something more to the purpose, we were preparing, with sorrowful hearts, to throw over the best and heaviest of the cargo, in order to lighten the schooner, when Jenkins, who had gone up with the glass to the foretop, sung out—"Avast heaving there; here comes a customer for the Frenchman—hurra!" We all ran to the side, and gazed to where Bill's arm pointed; and there, sure enough, about four miles a-head—the wind was right on our beam—was a British ship of war, just rounding a headland, and coming on like a race-horse. Up went our ensign—we had hitherto modestly concealed it—in a brace of shakes; we crowded out three lusty cheers, and fired our two little brass popguns, as valiant as turkey-cocks, at the corvette. As soon as the Frenchman perceived his new friend, he luffed up into the wind, and seemed for a few minutes doubtful whether to show fight or a clean pair of heels. The British vessel was the "Scorpion" sloop

of war, and about a fair match for the gentleman who had so nearly snapped up my father's son and his inheritance of marketable sundries. But the Frenchman finally made up his mind for a tussle. In little more than ten minutes the "Scorpion" swept close by us, and we were hailed from the quarter-deck with, "What schooner's that?" "The Blue-Eyed Maid of London," was the prompt reply. "Heave to, and wait here till our return," was the as quick rejoinder. "Ay, ay, sir!" shouted Bill Jenkins, at the same time respectfully touching his hat, and adding in a lower voice, "We'll see you smothered first!" In those days, gentlemen, merchant vessels were by no means desirous of too intimate an acquaintance with his majesty's cruisers. They had a pestilent way of carrying off the best hands, and both skippers and sailors, like the sheep in the story-book, used to make ugly comparisons between the wolves and the shepherds: so we kept on under as much sail as the sticks would bear. The appearance of the British cruiser had changed the delirious rage of the Spaniard into the wildest joy; and when the fight, of which we had a capital view at a pleasant and rapidly-increasing distance—a circumstance, let me tell you, which adds wonderfully to the agreeableness of such glorious spectacles—indeed, to tell the honest truth, I doubt if they are ever thoroughly enjoyed in any other manner—

'I always understood,' interrupted a thin, squeaky voice, struggling through the smoke from a corner of the room; 'I always understood that warriors delight in battle.'

'Did you, Tape?' rejoined Captain Smith: 'then your innocence has been shamefully imposed upon. A great pleasure *over* a battle *may* be; but ball-favours in actual course of distribution are anything but pleasant to the two-legged targets expectant. He who thinks otherwise, you may depend upon it never played at the game. But to return to my story. The Spaniard, I was saying, capered like a maniac—which in truth he was, and that's the best thing, you'll admit presently, can be said of him—at every mishap that befell the Frenchman's spars or rigging-gear; and when, after both ships had been some time hull down, Bill Jenkins announced from the mizzen-truck, with a roar like a small hurricane, that the tricolor was struck, he fairly yelled with delight, and was so overcome with joy that he fainted away, and had to be carried below. A man must have lived in Spain in those days to know to what a pitch national animosity can be carried; and this Senor Cortina, to add to his aversion for the French as the invaders of his country, had suffered, I afterwards learned, personal wrong and violence at their hands. His château, after a foolish resistance, had been sacked and burned, and his daughter ill-treated by the savage soldiery. After a few hours' repose he was again on deck, ejaculating as before; and by what I could piece out from detached sentences I now and then overheard, I believed him to be imploring strength and help for the accomplishment of some great and awful duty which he had made a vow to perform.

'Nothing further occurred till we made the entrance of the Ebro, where we stood on and off for a couple of days and nights. At last our signals were answered, and we made a successful run of the entire cargo. As soon as I had pocketed the cash, I paid the crew liberally, and despatched the schooner back to Gibraltar, intending to join my regiment over land. I lingered a few days at the *podesta*, where my late passenger had put up, and became, in consequence, an actor in the affair which followed.

'One day, after a late dinner, I told Senor Cortina who I was, and the occupation I usually followed. His dull old eyes flashed with joy, and having first pressed a considerable present on my acceptance, and hinted that he wished to confer privately with me in the morning, he retired to his chamber. The sight and feel of the money effected a decided change for the better in my opinion of the old gentleman's rabid pa-

triotism, and I began to think somewhat highly of one who evinced such touching gratitude towards an ally. The next morning I was summoned immediately after breakfast to his apartment, where he sat as cold, stern, and rigid as an iron image. All his flightiness was gone, and he was as solemn as a judge. His first sentence was a stunner! "I want you, Mr Smith, to convey a message to an officer of the garrison of Bilbao." "Bilboa?" says I, almost lifted off my feet with surprise. "Yes," he replied, cool as a cucumber—"Bilboa. The service is, I am aware, dangerous; but the reward shall be ample." This was to the point, and sensible. "What is the officer's name, senor?" "Colonel Delisle," he replied, naming one of the most active and successful officers in King Joseph's service. He was, I had before heard, a Spaniard born, though he now bore a French name; that, I believe, of his wife. You must know, gentlemen, that many Spaniards, through dislike of the old corrupt system of government, which, they said, had ruined the country, joined the intrusive monarch, as he was called, in hopes of establishing through him a more enlightened rule. They were called *Afrancesados*, and were more bitterly hated by the "patriots" than were the French themselves. "Colonel Delisle!" I exclaimed; "why, what on earth can *you* have to say to him?" "He is my son," was the reply. I was dumbfounded. "Yes," resumed the old man, his cold, hard eye glittering like a serpent's, "Colonel Delisle is my son; and as I feel that I have not many weeks, perhaps not many days, to live, I wish to see him once more ere I die. I wish you to convey this message to him. I cannot enter Bilbao myself, for a price is set upon my capture. You are used to such enterprises; and, as I said, the reward shall be ample. This ring," he added, taking an old family affair from his finger, "will accredit your message." Well, I at last consented to undertake the commission, and immediately set about my preparations. They were completed in about an hour; and in the afternoon of the same day I arrived safely at Bilbao, distant about eleven miles from where we were stopping. I soon succeeded in procuring an interview with the colonel, a fine soldierly-looking man, and at once imparted my message. He was greatly agitated, and pressed me with a hundred questions, which I answered or evaded as well as I could. Finally, he agreed, though with much hesitation, to meet his father, for whom he seemed to entertain a strong affection, a few miles without the town on the following day. From his inquiries concerning his sister, I gathered that he was ignorant of the burning and sacking of his paternal mansion, and I left him in happy ignorance on the subject.

'I got safely back to Senor Cortina; and when I informed him of the result, a flash as of demoniac joy lighted up his withered features, and fading in an instant, left them paler, stonier than before. I could not comprehend his strange expression of face; but the faintest suspicion of his motives never crossed my mind. It was arranged that I should meet the colonel, and conduct him to a small farmhouse, about half a mile distant from the place of rendezvous, where the senor would be in waiting.

'Evening was rapidly closing in as I next day reached the appointed spot. I gave the concerted signal, and a tall figure immediately emerged from the concealment of a large clump of stunted fir-trees: it was the colonel! He expressed surprise at not seeing his father; but, satisfied with my explanation, agreed at once to proceed to the farmhouse. We set off at a smart pace, and were just entering a narrow sort of gorge leading through some intervening hills, when thirty or forty muskets were suddenly presented at us by a number of men who seemed literally to start out of the ground. The colonel glared fiercely for an instant in my face; and muttering "Accursed traitor!" sprang wildly up the declivity. The attempt was useless: he was instantly seized. Our arms were pinioned; and having first searched and stripped us of all the money and valuables

we had about us, we were placed in the centre of the party, and marched off at a brisk pace. After about three hours' smart walking, we arrived at the headquarters of the guerilla party into whose hands we had fallen. It was a wild-looking spot, encircled on all sides by bare and rugged hills. The night was cold, dark, and stormy, and the only objects we could discern were several stacks of piled muskets, baggage and horse-furniture scattered here and there, and a rude portable table, near which was placed a number of equally rude camp-stools. Not a word was spoken; and the only sounds we heard for a space, I should think, of more than twenty minutes, were what I took to be signal whistles replied to at greater and lesser distances. At the end of that time men wrapped in cloaks stalked, silently as shadows, into the space in front of us, and seated themselves in grim silence near the table or trestled boards. I counted fifteen of them, when a whistle louder and shriller than any that had preceded it announced the arrival of the chief of the pleasant party. He took his seat in the centre of them. Pine torches were then lighted, at which the grim gentlemen kindled their cigars, and business commenced in very dangerous earnest.

"Who and what are you?" said the chief, addressing me in a voice as rough as a nutmeg-grater. I informed him. The explanation was satisfactory, for he immediately said, "You are free." I started with joyful surprise, and was just about to claim restitution of my stolen property, when I was silenced by a peremptory, "Who is your companion?" This was a poser; but as I had anticipated some inquiry of the sort, I answered pretty readily that he was a gentleman living in Bilbao, with whom I had some pecuniary transactions; and that we were proceeding to a neighbouring farmhouse to settle matters when we were arrested. For the truth of which statement, I added, one Senor Cortina, who was still no doubt waiting there for us, would readily vouch.

A meaning smile, as I uttered the senor's name, gleamed over the rugged features of the chief, and was reflected on the countenances of his companions. Puzzled and alarmed, I stopped abruptly, and held my peace.

"Is this fellow's story true?" said the president of the court, addressing the colonel.

"The colonel was silent for a few seconds, and then said, "Yes; I am a peaceable and loyal inhabitant of Bilbao."

"Does any one know him?" said the chief, looking around inquiringly. "We must have no mistake in this business." There was a long and anxious pause; but no one answered.

"I am sorry for it," muttered the president, as if speaking to himself; "but it must be done." He then whispered one of his companions, who instantly rose, and quickly disappeared in the surrounding gloom.

A painful silence ensued. The colonel's countenance was dark and troubled, and I am pretty sure he partly guessed what was coming. At last two figures approached the circle. They were the guerilla officer returning to his seat, accompanied by Senor Cortina. I could scarcely believe my eyes, and trembled in every joint of my body. The old man looked harder, colder, stonier than ever; but as his eye fell upon his son, the same fierce gleam I had before so frequently noticed flashed from his eyes, and his features worked with convulsive passion. The fit lasted but a moment, and he was calm again. The chief had risen at his approach, and his manner, as he invited the senor to be seated, indicated both respect and compassion. The old man declined the proffered seat, and remained erect, motionless, and rigid.

"Is the prisoner the man whom we seek?" asked the president in a nervous, agitated whisper.

"Yes," replied Senor Cortina, in a distinct, but somewhat hurried voice and manner, like a man repeating a lesson he has long conned over; and is anxious to be

done with. "He is Colonel Delisle, as he calls himself, in the usurper's service. His real name is Cortina: he is my son, and a Spaniard by blood and birth. He is one of the most active foes of his suffering countrymen. I was on my way to England with my daughter, who, you may have heard"—The old man paused, and again the expression of insane hate and fury flitted across his features. Recovering himself, he proceeded, but more hurriedly even than before, "She died at Gibraltar, and I returned here with that worthy man (pointing to me), in order to atone by this sacrifice for the crime of having given birth to a traitor."

A deathlike silence followed. The stern countenances of the members of this rude court of military justice, as seen by the fitful glare of the torches, assumed a gloomier and more savagely-sinister aspect as the old man spoke; but not a word or gesture of comment followed. Senor Cortina, upon a gesture from the president, was led away.

"You hear, Colonel Delisle?" said the chief, as soon as he supposed the father was out of hearing.

"I do," replied the victim, mastering, as well as he could, the frightful emotion which the old man's denunciation had excited. "I do, and perceive that I am hopelessly entrapped into the power of remorseless ruffians by that mistaken, much-to-be-pitied old man, whom may God forgive, as I do! I ask not for mercy from such as you; indeed I know it would be bootless to do so; but I tell you to your teeth that my love and devotion to Spain are as strong and pure as yours can be. I sought to liberate her—with foreign help, 'tis true, for how else could it be done?—from the vilest tyranny that ever debased and ruined a gallant nation; you fight to restore her, also by foreign aid, to thralldom of both soul and body. You are impatient: well, then, your sentence—and be brief!"

"It was soon passed—death without delay.

"Do you wish for a priest?" said the chief.

An impatient gesture of refusal was the only answer. Half-a-dozen musketeers, at a signal from one of the officers, stepped forth from the ranks behind us: the colonel drew himself fiercely up, and looked them sternly and steadily in the face: the chief waved me away: the words, "Make ready, present, fire!" were rapidly given: the death-shots rang sharply on the silence of the night; and the colonel fell stone-dead on the greensward. A soldier tapped me lightly on the shoulder, and bade me follow him. I mechanically obeyed, and soon found myself on the high road, where my guide, having first generously restored me three of the many gold pieces I had been robbed of, left me. I was so knocked up, so bewildered by what I had witnessed, that I sought shelter and repose in the first house I came to; and it was not till the fourth day after the colonel's execution that I arrived at my old lodgings. I was there informed that Senor Cortina had returned, bringing with him his son's body, which was interred in a neighbouring burying-ground, and that the old man had since passed most of his time there. I waited several hours for him, as I had not yet touched the reward, which, although I wished to Heaven I had never earned, still, as the mischief was done, I felt a natural desire to receive: but finding he did not arrive, and feeling anxious to be gone, I proceeded to the churchyard in search of him. As I approached, I saw him kneeling, with his back towards me, by the side of a new-made grave, at the head of which was a wooden crucifix. I called to him, at first gently, then louder: receiving no answer, I went up, tapped him on the back, and found that he was dead! The unnatural furor which had preyed on him had at length quenched the last spark of life. He was a victim to his own vengeful passions!

"What a horrible transaction altogether!" said one or two of the party.

"Yes," said the captain in conclusion, "it was an affair I shall never forget, although I do try to banish it from recollection. It was, however, after all, only one of

thousands of cases of family desolation and murder that occurred during the Peninsular war. Gentlemen, good-night!

THE MYSTERY OF IRELAND.

IRELAND is a mystery to all mankind. Amidst the mazes of its erratic course, there is but one thing to which it is constant—disaffection to England. Let the government be severe or mild, partial or impartial, let the English feed its starving millions, or hesitate about even so small a grant as fifty thousand pounds, Ireland hates England all the same. One could almost suppose that it keeps itself wretched, only to be an annoyance to England in the way of throwing discredit upon it. In no other way can we account for that strange conduct of the sister island which seems so nearly to transform into an expression of real design the celebrated illustration of the national grammar—*'I will fall, and nobody shall help me.'*

Amongst the many attempts that have been made to explain the mystery, we wonder that nobody has ever suggested the idea that offended self-love is the chief thing at the bottom of it. There is a self-love in nations and in provincial groups of people, as well as in individuals. Enter any little town, and on coming into intimate conversation with the people, you will find them to have some sense of its importance—its church celebrated for this, its schools for that, uncommon ale brewed in it, some of the cleverest men at the bar natives of it, and so forth. In any small provincial nationality, this feeling is usually very intense: their slumping their distinct name and character with any greater body of people they always look upon as a kind of favour which ought to be handsomely acknowledged. It requires some nice management on the part of the great mass to keep them sweet—at least till new and superior feelings have come to supersede or regulate those originally manifested. It is very much the same case, indeed, as that of having relations in a somewhat lower social grade, and who have but a limited acquaintance with the ways of the world. All must have felt how difficult it is, with the best feelings, to keep on a perfectly amicable footing with such persons. No common observance of polite rules will serve, for they do not know them, and cannot measure their force. No scrupulous abstinence from every positive ground of offence will do. The composed and easy familiarity which suits with equals will not answer here. There is a restless jealousy of alight to be overcome, an uneasy sense of inferiority to be soothed and lulled asleep. Without something, therefore, like a violent good-will, and expressions which in another case would appear exaggerated, it is scarcely possible to keep things right. The matter may be said to resolve itself into the well-known maxim, that the first requisite for our standing well with any one is to put him at ease with himself. Now nationalities may be so circumstanced with respect to others, as to be uneasy on the score of self-love. It may be a childish feeling, but for the time they cannot help it. Ireland is, we think, in this predicament. It is just at that point in civilisation when such puerilities have a force. Scotland, being geographically connected with England, and having had the grace of sending a king to take rule in the larger country, had less to overcome at the first, and her superior civilisation has quickly done the rest. But Ireland is still thrilling with the poor-relation jealousy, and, strange as the case may seem, we suspect that little else is required to account for the extraordinary state of that unhappy country.

If such be a true view of the case, the required remedy would appear to be simpler than has been generally supposed. England must set herself, with what zeal she may, to smooth down the ruffled plumes of her

unfortunate sister. As there is a cheap defence of nations, so there may be a cheap cure for some of their maladies. Kind words would go farther than money, for they inflict no sense of obligation. Some expressions tending to soothe the self-esteem of Ireland with regard to her political status are called for. A royal visit would be a grand stroke of policy. We are not even sure but that it would be worth while to encounter the chance of some inconveniences, in order to obtain the obvious benefits of a national council of some kind seated in Dublin, at least to deliberate, if not to legislate, on Irish public business. Say it were a mere toy, yet we know that toys have their effect; and there may be cases in which no higher influence would be of avail. Anyhow, whatever may be the particular measures to be taken, they must certainly, if we are right in our premises, be of the kind here indicated. We can imagine some great minister taking up such a policy, and, by a few dexterous measures, putting all to rights. It was by such generous yet simple means that the Scottish Celts were gained over to be the friends of the English government in the middle of the last century.

THE BICÊTRE IN 1792.*

It was in the latter end of 1792 that Pinel, who had been appointed some time before medical superintendent of the Bicêtre, urgently applied for permission from the authorities to abolish the use of the irons with which the lunatics were then loaded. Unsuccessful, but resolved to gain his object, he repeated his complaints with redoubled ardour before the Commune of Paris, and demanded the reform of this barbarous system.

'Citizen,' replied one of the members of the Commune, 'to-morrow I will pay you and the Bicêtre a visit. But wo to you if you deceive us, and are concealing the enemies of the people amongst your madmen!'

The member of the Commune who spoke thus was Couthon. The next day he arrived at the Bicêtre.

Couthon was himself perhaps as strange a sight as that which he had come to see. Deprived of the use of both his legs, he was always carried about on men's shoulders; and thus mounted and deformed, he, with a soft and feminine voice, pronounced sentences of death; for death was the only logic at that moment. Couthon wished to see, and personally to question, the lunatics one after another. He was conducted to their quarter of the building; but to all his questions he received but insults and sanguinary addresses, and heard nothing amidst the confused cries and mad howling but the chilling clank of the chains reverberating through the disgustingly dirty and damp vaults. Soon fatigued by the monotony of the spectacle and the futility of his inquiries, Couthon turned round to Pinel, and said, 'Ah, citizen, are not you yourself mad to think of unchaining such animals?'

'Citizen,' replied the other, 'I am convinced that these lunatics have become so unmanageable solely because they are deprived of air and liberty, and I venture to hope a great deal from a thoroughly different method.'

'Well, then, do what you like with them; I give them up to you. But I fear you will fall a victim to your presumption.'

Now master of his actions, Pinel commenced the next day his enterprise, the real difficulties of which he had never for a moment disguised to himself. He contemplated liberating about fifty raving madmen without danger to the more peaceable inmates. He decided to unchain but twelve as a first experiment. The only precaution he judged necessary to adopt was to prepare an equal number of waistcoats—those made of stout linen, with long sleeves, and fastened at the back, by means of which it is easy to prevent a lunatic doing serious mischief.

* From the account of Dr Scipion Pinel, son of the humane and scientific physician of that name.

The first whom Pinel addressed was the oldest in this scene of misery. He was an English captain; his history was unknown; and he had been confined there for forty years. He was considered the most ferocious of all. His keepers even approached him with caution; for in a fit of violence he had struck one of the servants with his chains, and killed him on the spot. He was more harshly treated than the others, and his severity and complete abandonment only tended still more to exasperate his naturally violent temper.

Pinel entered his cell alone, and addressed him calmly. 'Captain,' said he, 'if I take off your chains, and give you liberty to walk up and down the yard, will you promise me to be reasonable, and to injure no one?'

'I will promise you; but you are making game of me. They are all too much afraid of me, even you yourself.'

'No, indeed, I am not afraid,' replied Pinel; 'for I have six men outside to make you respect me: but believe my word; confide in me, and be docile. I intend to liberate you, if you will put on this linen waistcoat in place of your heavy chains.'

The captain willingly agreed to all they required of him, only shrugging his shoulders, and never uttering a word. In a few minutes his irons were completely loosened, and the doctor and his assistants retired, leaving the door of his cell open.

Several times he stood up, but sank down again: he had been in a sitting posture for such a length of time, that he had almost lost the use of his limbs. However, at the end of a quarter of an hour he succeeded in preserving his equilibrium; and from the depth of his dark cell he advanced, tottering towards the door. His first movement was to look up at the heavens, and to cry out in ecstasy, 'How beautiful!' During the whole day he never ceased running up and down the stairs, always exclaiming, 'How beautiful! How delightful!' In the evening he returned of his own accord to his cell, slept tranquilly on a good bed which had been provided for him in the meantime, and during the following two years which he spent at the Bicêtre he never again had a violent fit; he even made himself useful, exercising a certain authority over the other lunatics, governing them after his fashion, and establishing himself as a kind of superintendent.

His neighbour in captivity was not less worthy of pity. He was an old French officer, who had been in chains for the past thirty years, having been afflicted with one of those terrible religious monomanias of which we even now-a-days see such frequent examples. Of weak understanding and lively imagination, he conceived himself destined by God for the *baptism of blood*—that is to say, to kill his fellow-creatures, in order to save them from hell, and to send them straight to heaven, there to enjoy the felicity of the blessed! This horrible idea was the cause of his committing a frightful crime. He commenced his homicidal mission by plunging a dagger into the heart of his own child. He was declared insane, confined for life in the Bicêtre, and had been afflicted for years with this revolting madness. Calmness at length returned, but without reason: he sat on a stone silent and immovable, resembling an emaciated spectre of remorse. His limbs were still loaded with the same irons as when first he was confined, but which he had no longer strength to lift. They were left on him as much from habit as from the remembrance of his crime. His case was hopeless. Dr Pinel had him carried to a bed in the infirmary; his legs, however, were so stiff and contracted, that all attempts to bend them failed. In this state he lived a few months longer, and then died, without being aware of his release.

The third presented a strange contrast. He was a man in the prime of life, with sparkling eyes; his bearing haughty, and gestures dramatic. In his youth he had been a literary character. He was gentle, witty, and had a brilliant imagination. He composed romances, full of love, expressed in impassioned language. He

wrote unceasingly; and in order to devote himself with greater ardour to his favourite compositions, he ended by locking himself up in his room, often passing the day without food, and the night without sleep. To complete all, an unfortunate passion added to his excitement: he fell in love with the daughter of one of his neighbours. She, however, soon grew tired of the poor author, was inconstant to him, and did not even allow him the consolation of a doubt. During a whole year the anguish of the poor dreamer was the more bitter from concealment. At length, one fine day he saw the absurdity of his despair, and passing from one extreme to the other, gave himself up to every kind of excess. His reason fled, and taken to the Bicêtre in a raging fit, he remained confined for twelve years in the dark cell where Pinel found him flinging about his chains with violence. This madman was more turbulent than dangerous, and, incapable of understanding the good intended to him, it was necessary to employ force to loosen his irons. Once he felt himself at liberty, he commenced running round and round the courtyard, until his breath failing, he fell down quite exhausted. This excitement continued for some weeks, but unaccompanied by violence, as formerly. The kindness shown to him by the doctor, and the especial interest he took in this invalid, soon restored him to reason. Unfortunately he was permitted to leave the asylum and return to the world, then in such a state of agitation: he joined the political factions of the day with all the vehemence of his passions, and was beheaded on the 8th Thermidor.

Pinel entered the fourth cell. It was that of Chevingé, whose liberation was one of the most memorable events of that day.

Chevingé had been a soldier of the French Guard, and had only one fault—that of drunkenness. But once the wine mounted into his head, he grew quarrelsome, violent, and most dangerous, from his prodigious strength. Frequent excesses caused his dismissal from his corps, and he soon squandered his scanty resources. At length shame and misery plunged him in despair, and his mind became affected. He imagined that he had become a general, and fought all who did not acknowledge his rank. It was at the termination of a mad scene of this kind that he was brought to the Bicêtre in a state of fury. He had been chained for ten years, and with stronger fetters than his companions, for he had often succeeded in breaking his chains by the mere force of his hands. Once, in particular, when by this means he had obtained a few moments of liberty, he defied all the keepers together to force him to return to his cell, and only did so after compelling them to pass under his uplifted leg. This inconceivable act of prowess he performed on the eight men who were trying to master him. From henceforth his strength became a proverb at the Bicêtre. By repeatedly visiting him, Pinel discovered that good dispositions lay hidden beneath violence of character, constantly kept excited by cruel treatment. On one occasion he promised to ameliorate his condition, and this promise alone had greatly tranquillised him. Pinel now ventured to announce to him that he should no longer be forced to wear his chains. 'And to prove that I have confidence in you,' added he, 'and that I consider you to be a man capable of doing good, you shall assist me in releasing those unfortunate individuals who do not possess their reason like you. If you conduct yourself properly, as I have cause to hope you will, I shall then take you into my service, and you shall not leave me.'

Never in the mind of man was there seen so sudden or complete a change: the keepers themselves were forced to respect Chevingé for his conduct. No sooner was he unchained, than he became docile, attentive, watching every movement of Pinel, so as to execute his orders dexterously and promptly, addressing words of kindness and reason to those lunatics with whom he had been on a level but a few hours previously, but in whose presence he now felt the full dignity of liberty.

This man, who had been unhumanised by his chains during the best years of his life, and who doubtless would have dragged on this agonizing existence for a considerable length of time, became at once a model of good conduct and gratitude. Frequently in those perilous times he saved Pinel's life; and one day, amongst others, rescued him from a band of ruffians, who were dragging him off *à la lanterne*, as an elector of 1789. During a threatened famine, he every morning left the Bicêtre, and never returned without provisions, which at that moment were unpurchasable even for gold. The remainder of his life was but one continued act of devotion to his liberator.

Next room to Chevingé, three unfortunate soldiers had been in chains for years, without any one knowing the cause of this rigour. They were generally quiet and inoffensive, speaking only to each other, and that in a language unintelligible to the rest of the prisoners. They had, however, been granted the only privilege which they seemed capable of appreciating—that of being always together in the same cell. When they became aware of a change in their usual mode of treatment, they suspected it to proceed from unfriendly motives, and violently opposed the loosening of their irons. When liberated, they would not leave their prison. Either from grief or want of understanding, these unhappy creatures were insensible to the liberty now offered to them.

After them came a singular personage, one of those men whose malady is the more difficult of cure, from its being 'a fixed idea,' occasioned by excessive pride. He was an old clergyman, who thought himself Christ. His exterior corresponded to the vanity of his belief: his gait was measured and solemn; his smile sweet, yet severe, forbade the least familiarity; everything, even to the arrangement of his hair, which hung down in long curls on each side of his pale, resigned, and expressive countenance, gave him a singular resemblance to the beautiful head of our Saviour. If they tried to perplex him, and said, 'If thou art Him whom thou pretendest: in short, if thou art God, break thy chains and liberate thyself!' He immediately, with pride and dignity, replied, 'In vain shalt thou tempt thy Lord!' The sublimity of human arrogance in derangement!

The life of this man was a complete romance, in which religious enthusiasm played the first part. He had made pilgrimages on foot to Cologne and Rome, and had then embarked for America, where, among the savages, he risked his life in the hope of converting them to the true faith. But all these travels, all these voyages, had the melancholy effect of turning his ruling idea into a monomania. On his return to France, he publicly announced himself as Him whose gospel he had been preaching far and wide. Seized and brought before the archbishop of Paris, he was shut up in the Bicêtre as a lunatic, his hands and feet were loaded with heavy irons, and for twelve years he bore with singular patience this long martyrdom and the incessant sarcasms to which he was exposed.

Argument with such minds is useless; they neither can nor will understand it. Pinel, therefore, never attempted to reason with him; he unchained him in silence, and loudly commanded that every one for the future should imitate his reserve, and never address a single word to this poor lunatic. This line of conduct, which was rigorously observed, produced an effect on this self-conceited man far more powerful than the irons and the dungeon. He felt himself humbled by this isolation, this total abandonment, in the full enjoyment of his liberty. At length, after much hesitation, he began to mix with the other invalids. From that time forward he visibly improved, and in less than a year was sufficiently recovered to acknowledge the folly of his former ideas, and to leave the Bicêtre.

Fifty lunatics were in this manner released from their chains in the space of a few days. Amongst them were individuals from every rank of life, and from every country. Hence the great amelioration in the treat-

ment of insane patients, which, until then, had been looked on as impracticable, or at least fraught with the utmost danger.

PRENTICE'S TOUR IN THE UNITED STATES.

MR PRENTICE'S small volume, 'A Tour in the United States,' to which we referred in a previous number, presents the unvarnished account of a rapid run, for the sake of health and recreation, in the summer of 1848. The author, who had for some years been connected with the press in Manchester, sailed from Liverpool in the Hibernia steamer, May 13, his friend Mr Brooks accompanying him on the voyage and subsequent journey. A few passages here and there from the 'Tour' may amuse our readers.

On arriving at New York in splendid summer weather, 'with the delightfully cool temperature of only 75 degrees in the shade,' the tourists were struck with the liveliness and beauty of the scene. The spectacle of the noble bay, crowded with ships and steamers, was in the highest degree picturesque and exciting. A lady, 'who had kept the deck in all weathers, said the scene was worth coming across the Atlantic to see, even though the spectator should turn home again without landing.' The beauty of the more retired part of the city was still more unexpected. 'The better class of houses are of white marble, or the light-gray sienne granite. All this, and the absence of smoke, give an exceeding lively air to the whole aspect of the city. We have nothing to match it in that respect in the old country. We have been much struck also with the great number of good dwelling-houses in proportion to the population. There are miles of streets in which there is not a house worth less than 500 dollars, or £100, per annum, and many of them worth three or four times that amount.' The tourists went to the Astor House, a hotel consisting of an immense pile of buildings, enclosing a courtyard like the quadrangle of an Oxford college; the house accommodates 400 inmates, and 150 sat down to table. Dinner most luxurious; strawberries with iced cream for dessert. Ice is an article of great consumption here. 'At table, your tumbler is supplied from a great jug one-fourth filled with lumps of ice; we have found a tumbler of milk with a piece of ice in it a great luxury after breakfast and tea.

'Any one can see at a glance that New York is destined to be one of the largest and wealthiest cities in the world. When evacuated by the British in 1783, it contained about 25,000 inhabitants; the number is now about 500,000. Although always crowded with loitering immigrants, the wages of common labour are about 50 per cent. more than they are in England, and the price of food is one-third less. It is true that rent, clothes, and coals are 50 per cent. higher; but where a man has scarcely earned more than has kept him in food, the change by coming here is decidedly to his advantage, always premising that he brings the kind of labour which is in demand. If the labourer has earned 3s. a day in England, he will earn 4s. 6d. here. Let us compare his relative position in the one country and the other. At home, his food has cost him 12s. a week, and his rent, clothes, and coals, 6s., absorbing all his wages. Let him live in the same style here, and he will pay 8s. for his food, and 9s. for his rent; clothes, and coals, leaving him 10s. a week of clear savings. The misfortune is, that whisky is only 1s. a gallon—very wretched stuff no doubt; not at all the "real Glenlivet"—but men get drunk upon it for a trifle, and either die, or half-starve, or seek refuge in the almshouse. There is encouragement for sober and industrious men. Irish labourers save a few pounds, enter into some small street-trading, ultimately take a store of one kind or another, and their sons become respectable merchants—a process which we never observe in Manchester.'

Talking of Manchester suggests a comparison between it and New York as to churches. The population

is about the same in both; but while Manchester has 114, New York is provided with 215 places of worship; and 'the various sects live in comparative amity one with another.' We wish as much could be said of any large English or Scotch town. The tourists go from New York to Philadelphia, which has 150 churches, also 'a much larger proportion to the population than we have in Manchester.' The churches in America are furnished and decorated with much taste and a great regard to comfort. The pews are usually of the finer polished woods. From Philadelphia they proceed to Baltimore and Washington; then on towards the valley of the Mississippi, by following the course of the Potomac to the Alleghany ridge. The scenery on the Potomac was rich and pleasing: road across the Alleghanies very bad: jolting in the stage dreadful: all pains compensated by the comforts of a magnificent hotel at Pittsburg: views around the town very fine: take steam down the Ohio to Cincinnati. Prentice grows almost poetical in descending the Belle Rivière, as the French truly named it. 'Constantly winding, every quarter of a mile presents a new form of beauty. At one place we have steep hills on each side, clothed with trees growing as if they never could grow old; at another the ends of ridges, with magnificent monarchs of the forest filling the hollows between them; at another the high banks receding half a mile or a mile on each side, presenting a combination of lawns and trees such as might be expected around an English nobleman's seat; at another islands of surpassing beauty; at another vineyards and orchards; and at every opening clearings which indicate the cultivation that is going on behind. I grudged every moment spent at the breakfast, dinner, or tea-table. I spent hours alone at the highest elevation, where the steersman, perched aloft for a good long look-out, steered the long light steamer through its tortuous course; and after the brief twilight, I felt as one might feel after listening a whole day to the grandest and most beautiful strains of music, sorry that it was over, yet fatigued with the very intensity of pleasure enjoyed. The next day was Sunday, and we enjoyed the same succession of splendid pictures; and I thought of the time when, fresh from the Creator's hand, the earth was seen rejoicing in its loveliness. And then the sunset! It was worth while to cross the great Atlantic for that sight alone. We were in a bend of the river, seemingly completely land-locked. When the sun went down behind the western bank, a deep shade was thrown on the trees on that side, while those on the opposite bank were of a brighter and livelier hue; and then the shadow went upwards from the bottom of the deep slope, and upwards, with a distinctly-marked line, till that bank was also in the shade. And then the bright white clouds—as white as snow—began to change to all manner of bright colours, the orange predominating, in a gorgeousness of which the imitative art could convey no idea; and all this splendour was reflected by the little inland lake—not perfectly, for that would have been a repetition, but reflected from a liquid surface slightly in motion, the colour becoming more golden, till there lay before us "a living sheet of molten gold." Early next morning we found the vessel lying in-shore in a fog so dense, that we could not see ten yards on each side—strange contrast to the scene of the preceding night!... The sun soon dispelled the fog, and then the river was before us again in all its glory, widening, and its high banks receding—the white houses, and villages, and small cities increasing in number as we went onwards. In the afternoon of Monday we arrived at Cincinnati.'

From this thriving town the tourists proceed to Louisville, near which is the state prison of Indiana; an establishment worthy of inspection, for it has the merit of being more than self-supporting. 'It contains only 125 prisoners, the whole number of persons under sentence in a population of 800,000! They are set to work in yards and workshops as coopers, joiners, blacksmiths, &c.; and provisions are so cheap, that the sale

of the produce of their labour yields a profit to the State of L.1600 a year, after deducting all the expense of their maintenance, including the salaries of their officers. They are not permitted to converse together while at work, and are locked up in separate cells during the night. Some are working in brick-fields outside the walls, and do not attempt to escape.' To something of this sort our jails must ultimately come: the principle of giving dainty lodgings in palaces is exploded.

The tourists afterwards go by railway up the vale of the Little Miami towards Lake Erie. The country, though very partially reclaimed, was beautiful. In this, the upper part of the state of Ohio, easily to be reached through Canada, there is a favourable field for emigrants with a capital of a few hundred pounds. 'In this beautiful part of the country,' says Mr Prentice, 'I found that land, having the rich alluvial soil all in a state of cultivation, and the woodlands partially cleared, with a good substantial farmhouse, and the necessary farm offices, might be had at from L.7 to L.8 an acre. A well-informed farmer was in the train with us, who said, "If a young man comes on uncleared land, he is completely worn out before he has his work done, and dies when he should be beginning to enjoy himself; but he escapes almost all the hardships if he begins with a good bit of cleared land, and has a house to go into, and a shed to put his cattle into." I asked him what an English farmer could do who should bring L.1000 into such a country. "Do!" he said: "why, he could buy and stock a farm of a hundred acres of capital land, and live like a gentleman." Land partially cleared can frequently be had very cheap. It may sell for ten or twenty times more than it originally cost the clearing purchaser, and would be much cheaper than the forest land at 5s. an acre. The tendency is still westward. A farmer has four or five sons, and he desires that each should have a farm of his own. He sells his 80 acre lot for a sum which will enable him to purchase 500 acres farther west; and there, with 100 acres for each son, he says, "Now, lads, clear away!" He has been the pioneer into the forest west of the Ohio, and is quite ready to become the pioneer west of the Wabash. His sons will have the same migratory spirit. As their sons grow up, each father will sell his 100 acres, that he may purchase 500 west of the Illinois or the northern branch of the Mississippi. Thus can the English farmers always find small lots, purchasable at a rate cheap in comparison with the cost of clearing land, with a dwelling-house and cattle-sheds all ready; and thus he may avoid the fever and ague, which are almost certain to attack the northern Europeans who venture to break ground in the dank forest or swampy prairie.' Capitalists, he adds, may here lend money on good mortgages at 8 per cent. interest, payable half yearly. 'We have hundreds of tradesmen in our towns who cannot continue in business without the fear of losing all, and who have not accumulated sufficient money to retire upon. A man of such a class in England cannot live upon the interest of L.1000; but here, for L.200 he could purchase and stock a little farm of twenty-five acres, which would enable him to keep a horse and cow, sheep, pigs, and poultry, and supply his family with every article of food, while his L.800 at interest would give him an income of L.64 a year. He could even have his own sugar from his own maple-trees to sweeten his cup and preserve the peaches from his own fruit-trees; and almost all he would need to buy, besides clothes, would be tea, which may be had, of good quality, at from 1s. 9d. to 2s. a pound. Still farther west he could have 10 per cent. interest for his money.'

Sandusky is the point of embarkation on Lake Erie, and the tourists steamed thence to Buffalo. A view of some of the finer parts of Canada leads to the reflection that a settler in that country may be as successful as in the United States, 'as far as individual exertions go; but the man in the States profits not only by his own activity, but by the activity of all around him. His farm is not only improved by his own labour and skill,

but it is increased in value by the rapidly-increasing populousness of the district in which it is placed.' So says every traveller. Canada is retarded in every effort at advance by the perplexing regulations of the colonial office, as well as traditional usages; and on that account alone, even with a prejudice in favour of British institutions and manners, we should, if emigrating, decidedly prefer the United States.

The tourists visit Toronto, see Niagara, and thence go on to Montreal by water. The descent is somewhat hazardous. 'At Kingston we left the lake-boat, and went on board an iron steamer, admirably constructed for the rather hazardous navigation of the rapids on the St Lawrence. We were soon amongst the "Thousand Islands;" and here, as at most places much praised, I was somewhat disappointed. The islands were flat, and the wood was stunted and thin. The scenery was little better than we see in England when a river has overflowed its banks, leaving only the hedgerows and little hillocks visible above the water. But the islands became larger, rose more abruptly from the river, and increased in magnitude, till, instead of a wide lake studded with islands, we had an endless succession of canals cut in the solid rock—now straight, now curved; now wide, now narrow; now running in a strong torrent, now placid as the surface of a mirror. It was not until very recently that the steamboats went through from Kingston to Montreal, the navigation of the rapids being considered too hazardous; and the passengers were thrice landed, and thrice had to proceed portions of the way by stage-coaches. Now the vessels go right through; for although the mighty stream flows with extreme rapidity, there is a great depth of water, and little real danger if the steersmen do their arduous duties faithfully. The passage down one of these rapids is rather an exciting scene. Although the rocks are far down in the depth of the river, the surface is agitated like the face of the sea in a brisk gale. Through the high waves the ship dashes bravely. The danger is only from careless steering; but one feels that the slightest blunder would dash the ship to pieces on the rocks that line the rapids on each side. There is life and excitement in the scene; and we, who had been much urged to take a voyage on the sluggish and muddy Mississippi, rejoiced that we had chosen rather to trust ourselves on this magnificent and impetuous outlet to the great inland fresh-water seas. At Lachine our noble steamer stopped all night, the rapids between that place and Montreal being too hazardous to be passed except in broad daylight. Many of our passengers took the railway thence to the city, a fine steamer having been lost in the strongest of the currents only a few days before, in consequence of coming upon an unperceived raft of wood, and the passengers rescued with difficulty. We thought there might be safety in the additional vigilance that would be exercised after an accident, and we were rewarded by the sight of a beautiful and highly-exciting scene. While carried downwards at an alarming velocity—rocks rising up at each side, in the middle, now here, now there, often as if we were inevitably upon them, till a sudden twitch of the wheel changed our course—we enjoyed a sight not to be forgotten. There were six men at the wheel on the forepart of the deck, and their muscular strength was constantly in full requisition. I know not which was finest, the look downwards to the raging stream, or upwards to the eagle glances of the Indian pilot and his assistants, whose looks betokened their deep sense of the great responsibility they had undertaken. When we were safely through the greatest *chute*, we again breathed freely.'

Mr Prentice returns from Canada to the States by way of Saratoga, a northern watering-place, resorted to by the wealthy from all parts of the Union. The water, which is gaseous, and 'tastes pleasantly sharp, like the soda-water of our shops,' has a wonderful effect on the languid visitors from the south. After a few days' use of the water, they improve surprisingly in health. 'The

eye begins to recover its brilliancy, then the yellow tinge gradually leaves the complexion; in the course of a fortnight or three weeks, activity and cheerfulness are restored, and then the patients are able to take a tour to Champlain, Montreal, Quebec, Niagara, and the great lakes, before their return to the relaxing heats of the south. This tour becomes an annual necessity, and with many of the planters an annual luxury. We were told of one gentleman who, bringing his family with him, spends £3000 sterling every season in pursuit of health in the country, and amusement in the great towns; and of two others who each spend £2000 in their northern trip.'

On the 6th of August the tourists arrived in the Mersey by the Niagara steamer, which kept its time to a minute. From the time of leaving Boston, ten days and a-half had elapsed; and deducting twelve hours spent at Halifax, exactly ten days were occupied in crossing the Atlantic—distance 2950 miles. 'In 1818,' says Mr Prentice in conclusion, 'I was the same time in making the voyage from Glasgow to Liverpool.'

THE PET LIZARD.

It is a saying as old as Sterne that 'the heart must have something to love.' Go into a convent, you will perhaps see the solitary nun cherishing a pair of canaries, and watching their domestic labours of feeding and rearing their young. It has been said of state prisoners shut up in the most horrible dungeons—such as, thanks to the progress of civilisation, are now never used, but only *shown* as relics of barbarity—that they have beguiled their heavy hours by taming and feeding those most noxious of vermin, rats and mice. I have read of a missionary at the Cape of Good Hope who had a puff-adder in his room as a pet and rat-catcher. They tell also of a gentleman who watched day after day in his solitude a spider, which had won his heart by showing so great a predilection for his sweet music, as always to descend by a long silken shining thread, and remaining so suspended above the piano until its sounds ceased. For my own part, I had a much-valued and dearly-beloved relative who once petted a lizard. Of this friend and his lizard I wish chiefly to speak; not only to illustrate further the fact, that 'the heart must have something to love,' but also to let those who may read these lines become acquainted with this harmless and interesting companion of man in the East. There is not a house or a wall which has not its *Tic-tic-kie*, so called from the chucking sound they emit, or *Cheep Khellie*—literally, hide-and-seek player; and these no one thinks of disturbing or molesting.

The friend above alluded to had met with a severe bereavement; and from being a cheerful, social man, he became gloomy and retired, chiefly occupied in his library. One day, as he was rummaging amongst his books, and making some new arrangements, he, fortunately for himself, fell in with two little beautifully-smooth round eggs. No bird could enter *there*, nor was there a nest to be seen. They could not be snake's eggs, for they were not larger than a white dry pea; so what unknown creature could have deposited them on the boards of the book-shelf behind the Bible?

An old venerable *khansamah*, or steward, who was referred to, immediately pronounced them to be lizard's eggs; and when this was known, they were carefully deposited in dry sand, and a watchful eye was kept over them, keeping the glass covered with a perforated paper. One of the eggs was unproductive, but from the other there came forth a little slim, brown, active creature, which was shifted into a clean abode, and daily fed with flies and small insects, until it grew as large as a man's finger; and Mr K—, knowing how tame it was, and how attached the *Tic-tic-kie* is to his old haunts, at last allowed his founding to leave his prison.

As good-luck would have it, he was let loose upon the toilet-table, and always remained behind the glass, creeping out and in into one of the empty drawers, and

literally playing bo-peep when an insect was offered by the kind hand which nursed him. When the wall-shades were lit at night, each containing a tumbler made for the purpose, half-filled with water, and the rest pure oil of the cocoa-nut floating on the top, in which blazed a wick of white cotton, the lizard would leap upon the wall, and the bright round circle of light thrown by the mouth of the shade was its favourite resting-place. Its little prominent jet-black eyes were indeed two sparklers; and wo to the moth or insect which ventured into the magic circle, or came under the fascination of those eyes! The agile lizard immediately became as if transfixed; then, by imperceptibly gradual paces and evolutions of its body, it advanced until the last deadly jump was given, and then its victim was firmly held between two toothless, but never-relaxing little jaws. And so the hunt went on, to Mr K—'s great delight; the game being most abundant on a damp night, when the flying white ants, grasshoppers, and moths swarm, particularly in the sultry weather of August and September.

So months and days flew by, and the rational and irrational friends lived on in undisturbed harmony, until, as Mr K— was gazing with uplifted eyes on the wall one night, a light-coloured, almost white lizard made its appearance! He having studied only his own pet, knew little of the genus besides, so he could not account for the change his lizard seemed to have undergone; but in a little he was undeceived, for out crept his own pet also, first gazing cautiously, then appearing ruffled, and at last angry at the intruder. They exchanged fierce glances, wagged their tails, and defied each other, till at last the deadly leap was given, with a slight *creek-creek*, and oh, horror! Mr K—'s protégé had his tail bitten off; and he had the agony of seeing it wriggling and trembling in the mouth of its assailant! The brown lizard fell stunned to the ground, and lay almost lifeless at Mr K—'s feet; and his white enemy, having been frightened by the commotion in the room, dropped the little worthless tail, and took himself off, and was never again seen within the limits of the library.

Mr K—'s pet, however, came soon to himself, and kept as usual to his wall, glass, and drawer; and was watched, if possible, with more than the usual interest. In a few days, to Mr K—'s surprise and satisfaction, the mutilated tail was seen to grow: it waxed bigger and bigger daily, and, what was more strange, a little deformed side-tail was seen sprouting at the root of the old stump. Jackey's tails were shown to all Mr K—'s wondering and sympathising visitors, who, like many others, had never troubled their heads about such trifles, until the old khansamah enlightened them anew, by stating that Tic-tic-kies were of various shades; that the males, when they intruded upon each other's sporting-ground, or met in their courting season, generally fought and attacked each other; and that in these battles the tail was frequently seized and bitten off, and as frequently grew again, as the claws and feet of spiders and lobsters do; and that he, the khansamah, had now and then, but *not often*, seen a lizard with a double tail!

I may as well observe, before this is concluded, that the subject of our discussion has a very curiously-made foot, as the impressions which it occasionally leaves on the damp panes of window-glasses show. The foot, with four little toes, has the power of making a vacuum, and has the appearance of a file, or the sucker of the Remora fish; so it is enabled to hold on, even when it walks over a steep wall, polished glass, or with its head downwards, like the flies crawling over the ceiling of a room. The body or feet of a lizard would seem to emit something corrosive or irritating; for when it happens, as is sometimes the case, to run over the face of a person asleep, the skin is found in the morning to be blistered or excoriated. The tail of the lizard has a ring-streaked appearance, and, as has already been related, grows readily when by accident broken off.

Rearing and tending the Tic-tic-kie proved certainly to Mr K— what searching and looking for the fern blossom would be to a melancholic mind—a *répê* for the blue devils. It beguiled many sad hours, and cheered a drooping heart.

EARLY PRINTING IN CHINA.

ACCORDING to a German antiquary, the idea of printing from types was suggested to the mind of Faust by his seeing the footprints of a horse in the soft mud of a road by the side of which he was walking. He went home cogitating on the circumstance, and from that day printing was discovered.

Whatever value may attach to this tradition, much of it would disappear in the fact, that it does not record a first discovery. The East, which has proved to be the birthplace of so many of our arts, also originated printing. Klaproth states, in his 'History of the Mariner's Compass,' that the first use of stereotype, or solid wooden blocks in printing, dates from the tenth century of the present era. 'Under the reign,' he writes, 'of Mingsong, in the second of the years Tchang-hing (932), the ministers Fong-tao and Li-yu proposed to the Academy Koue-tsen-kien to review the nine king, or canonical books, and to have them engraved upon blocks of wood, that they might be printed and sold. The emperor adopted the advice; but it was only in the second of the years Kouang-chun (952) that the engraving of the blocks was completed. They were then distributed and circulated in all the cantons of the empire.'

This author further observes that the art thus practised in China might have been known in Europe 150 years prior to its discovery by the Germans, if Europeans had been able to read and translate the Persian historians, as the Chinese method of printing is clearly explained in the Djemma'a-et-tewarikh by Rachid-Eddin, who finished this immense work about the year 1310.

It has, however, been shown, in a communication made to the French Academy, that the art of printing was known to the Chinese at a period still more remote; and had Europeans been at that time in correspondence with the Celestial Empire, we should not now have to deplore the loss of manuscript books by early classic authors; their multiplication by printing would have secured the survival of at least a few. However imperfect the process might have been in its origin (before the 6th century), the master-works of Greek and Roman literature—some of which are now irreparably lost—might have been reproduced at comparatively small cost. That the antiquity rests upon good ground, appears from the 39th volume of the 'Chinese Encyclopædia.' We there read—'The eighth day of the twelfth month of the thirteenth year of the reign of Wen-ti, founder of the Soui dynasty (593), it was ordered by a decree to collect the worn-out drawings and inedited texts, and to engrave them on wood, and publish them. This was,' continues the work quoted, 'the commencement of printing upon wooden blocks.' This fact is confirmed by other Chinese writings; and the art, we are informed, grew much into use under Thang, 618 to 907; made still greater progress during the five lesser dynasties, 907 to 960; and reached its perfection and greatest development in 960-1278. It is considered probable that the art was known even before 593, as the block-printing was *then* ordered by the emperor: had it been altogether a new invention, something would have been said about its origin and author.

About the year 175 the Chinese began to cut inscriptions on stone, to preserve the purity of certain texts which had been corrupted by the errors of copyists. The six canonical books were inscribed in this way on slabs; the literary scribe wrote the characters in red, which were afterwards cut in by skilful artists. These slabs were placed outside the college gates, so that the learned might compare and correct their manuscript copies of the six books. These tablets were copied and

recopied as they decayed by age, and sometimes in three different sets of characters, to each of which students were allowed one year's study, and at the end of three years, were expected to read them all fluently. About 904, engraving on stone in the inverse sense was introduced, so as to print white on a black ground.

In 993 the Emperor Thai-tsung issued a decree, ordering that all the manuscripts recovered from those persons into whose hands they had fallen after being stolen from the royal tombs, should be engraved and reproduced in printing. These, we are told, were printed by hand, without being soiled by ink.

Between 1041 and 1048 the method of printing by movable types was introduced. The account is interesting:—'In the period King-li, one of the people, a blacksmith named Pi-ching, invented another manner of printing with *ho-pan*, or tablets formed of movable types.' The name is still retained in the imperial printing-offices at Peking. The ingenious blacksmith's method is thus described:—'He took of a fine and glutinous earth, which he formed into plates, and engraved on them the characters most in use. Each character was a type. These he burnt in the fire, to harden them, and then placed them upon a table of sheet-iron, coated with a fusible gum composed of resin, wax, and lime. When he wished to print, he took a frame of iron, divided interiorly and perpendicularly by strips of the same metal (Chinese is read vertically); and having laid it on the sheet coated with gum, inserted the types, placing them one close against the other. Each frame, when filled, formed a tablet. This was brought near the fire, to make the gum melt, after which a level piece of wood was pressed forcibly on the surface of the types, and pushed them down into the gum, by which means they became firm and even as a stone.'

There is so much in this account that would answer for a description of the present mode of printing, as further to exemplify the perfect state in which the art originated. Compared with others, there was but little feeling of the way in reducing it to practice; an important fact, when we consider the object—transmission of thought. Pi-ching's method, we learn, was very expeditious when a large number of impressions was required. On such occasions two forms were worked, one being inked while the impression was taken from the other. It is the custom in China to print but two pages at once, and on one side of the paper only; the sheets are then folded for binding, and the blank sides either left open or pasted together. Duplicates of many of the characters were kept wrapped in paper, and twenty of those most in request. When a new character was wanted, it was immediately prepared on the spot, and the inventor showed the advantage of clay over wood; there was neither grain nor porosity, with a greater facility of separation from the gum when required for distribution.

At Pi-ching's death, all this apparatus was carefully preserved by his successors; printing, however, went on in the old way, the reason being, that the Chinese has not, as other languages, an alphabet made up of a few characters with which all sorts of books may be printed, but a separate type is wanted for every word; and as the language is divided into classes of 106 sounds, so 106 cases (part of the furniture of a printing-office) would be required, each one to contain a prodigious number of types, thus rendering the mechanical task of composing and distributing one of enormous difficulty and labour. It was easier and cheaper to follow the usual method. This was, to write the text on a sheet of paper, which, being pasted on a wooden tablet, all the blank spaces were cut away, and the writing left in relief. In this way printing in China was carried on for a number of years, either by blocks of wood, or plates of stereotyped copper.

In 1662 the Emperor Khang-hi, on the representations of European missionaries, ordered that 250,000 movable types should be cut in copper. With these the Kou-kin-thou-chou, a collection of ancient and

modern works, was printed in 8000 octavo volumes, of which a considerable number have found their way to Europe, and are deposited in the Royal Library at Paris. This work is a beautiful specimen of Chinese typography: it comprises treatises on music, a history of the language and of foreign nations known to the Celestials. Some of the works issued from the imperial press at Peking are so fine and beautiful, that the emperor named them *Tsin-tchin*, or collected pearls. An interesting fact occurs with regard to the casting of types. In Europe, the steel punches and copper matrices required for the purpose involve a considerable outlay, and are liable to deteriorate by rust. The Chinese obviate this double inconvenience by making the punches of a very hard fine-grained wood, at a cost, for each type, from one farthing to a halfpenny. With these the matrices are struck in porcelain clay, baked in an oven, in which the type metal is melted. Judging from the specimens of printing, there is no more difficulty in 'justifying' the matrices thus produced than those of other material.

In 1773 the enlightened Emperor Khien-long decreed that 10,412 of the most important Chinese works should be engraved on wood, for printing in the usual way. Kin-kien, a member of the finance ministry, drew up a report, illustrated by plans and models, setting forth the expense of so large a quantity of wood-engraving, and recommending movable types. The minister's advice was followed; and from that day printing with movable types has made steady progress in China, and superseded the old method of block-printing. It was formerly the custom to defer all the corrections until after the printing; this also has been broken through, and the printers of the 'central flowery land' now adopt the more sensible European method of correcting before going to press.

Remote as is the antiquity thus assigned to printing, a French writer, Monsieur Paravey, shows it to be still more ancient. According to his statements, the Chinese only did on paper what had been done ages before on cotton by the Assyrians and Indo-Persians.

THE EXPELLED LACEWORKERS OF CALAIS.

It will be remembered that at the outbreak of the Revolution in France, February 1848, a large number of English operatives at Calais, Rouen, and other places were expelled from the country under circumstances of great injustice and indignity. At Calais, where about a thousand persons, chiefly from Nottingham, had been for some years settled in connection with the lace trade, the cry of *à bas les Anglais* was particularly violent, and personal injury was only averted by the timely interference of the English consul. Unwilling to return to England, where their profession was overcrowded, the unfortunate laceworkers sent a memorial to Lord Palmerston, desiring to obtain passages to one of the English colonies, and preferring, if a choice were permitted, to go to South Australia. In three days an answer was returned by his lordship, and a government commissioner arrived to make the requisite inquiries. He was immediately succeeded by Mr Cooper, a gentleman from the office of her Majesty's Land and Emigration Commissioners, who instituted diligent scrutiny into the characters and circumstances of the memorialists, and then arranged for their passage to England, preparatory to emigration for these colonies. On their arrival in London, they learned that a benevolent committee was sitting daily at the Mansion-house, under the auspices of Lord Ashley, and engaged in getting up a generous subscription, to which the town of Nottingham contributed from £300 to £400 for the relief of those who were hourly compelled to return to England from the French territory. The objections of the commissioners to send lacemakers and their families to a young colony like South Australia were compromised by an allowance of £5 per head from the subscription fund, and an engagement to provide a good outfit. The details were then arranged, and the 'Harpley' being appointed, a detachment of the emigrants embarked, and soon the poop of the ship, to use our informant's words, was 'transformed into a haberdasher's shop,' from which everything necessary was

gratuitously and unsparingly supplied to those who were in need; Mr Cooper being charged with Lord Ashley's princely commands to let the unfortunate want for nothing. Mr Commissioner Wood visited them at Gravesend previous to their departure, and addressed to them an admirable speech, full of kindness and encouragement, assuring them they were proceeding to a land where honesty and industry seldom failed to find their proper reward.

We notice all this for the purpose of mentioning that intelligence has been received in England of the safe arrival of the Harpley with the detachment of emigrants on board. The vessel came to an anchorage at Adelaide on the 30th of August, having occupied the interval from the 12th of May on the voyage. Referring to the arrival of the Harpley, the South Australian 'Register' of September 6 observes:—'The only instance of death among the adults in the course of the voyage was an aged and ailing man (in his sixty-seventh year), who was unwilling to be separated from his family, and to whom the commissioner humanely granted a free passage. He died in traversing the Bay of Biscay; the only instance of mortality besides being a delicate infant of three months old. During the passage the ship only sighted the Cape Verd Islands and St Paul's. The passengers, who were scarcely becalmed on the Line, suffered little from heat in the tropics, and as little from cold in the southern hemisphere, 39½ degrees south being the most southerly latitude the vessel attained. There was no case of serious illness during the greater part of the passage, and 256 souls have arrived in excellent health, in a remarkably clean and well-commanded ship, manned by a fine crew. During the passage Mr Spencer, the surgeon-superintendent, read prayers every Sabbath, when the weather permitted. We have seen in the hands of the refugee emigrants some of the certificates granted by employers and municipal officers in France, and they speak well for the character of the people, who, we hope, will find they have exchanged the inhospitable treatment of the French for a hearty welcome in a British colony. There is an instance calling for especial sympathy and spirited exertion on behalf of the colonists, and we shall much mistake if the newly-arrived do not in their case confirm the assurance, that any honest men and women who venture to South Australia with their offspring will be likely to find the right hand of fellowship extended towards them in a land of plenty.' Other detachments of the Anglo-French laceworkers have, we believe, gone to Port Philip and Sydney.

DUBLIN AND KINGSTOWN RAILWAY.

It is a fact worthy of consideration, that the only railway in Ireland which is fully remunerating the proprietors is the line from Dublin to Kingstown, six miles in length, which was made in the midst of ignorance as to the now existing light of railway engineering, and which actually cost over a quarter of a million of money, or at least double the rate per mile for which it could be now completed. And how was this? Simply that this line was an accommodation to the inhabitants of Dublin—first, for pleasure, and ultimately for daily intercourse; and that this accommodation was given at a tolerably moderate rate of charge, and with a wondrous saving of time. We have before us some strange records and statistics concerning this railway. From the first, we find that Mr James Pim and his colleagues were set down as a set of mad, jobbing Quakers, for thinking of such a scheme, and that a certain lord mayor of the city actually protested against the undertaking, on the grounds that her Majesty's loyal subjects would be in danger of losing their lives, or at least their sight, 'from the starting of horses on the Rock Road, and the red-hot dust that would issue from the engine.' And we ourselves knew more than one respectable old gentleman who prided himself to his death on the fact that he never travelled by the 'vile railway.' These are some of our records. From our statistics, we find great facts of the advantages to the public. The houses along the line have actually increased one hundredfold; the number of passengers carried yearly have more than doubled from the commencement; and in 1847 a dividend of 9 per cent. per annum was made at the half-yearly meeting. In order clearly to understand what the increasing traffic on this little line is, we may state that, in 1840, 1,280,761 passengers were carried; in 1847, 2,303,910; showing an increase of 1,023,149.—*The Advocate, an Irish newspaper.*

EVENING SOLACE.

[From 'Poems by Currer Bell,' lately published.]

THE human heart has hidden treasures,
In secret kept, in silence sealed;
The thoughts, the hopes, the dreams, the pleasures,
Whose charms were broken if revealed.
And days may pass in gay confusion,
And nights in rosy riot fly,
While, lost in Fame's or Wealth's illusion,
The memory of the Past may die.

But there are hours of lonely musing,
Such as in evening silence come,
When, soft as birds their pinions closing,
The heart's best feelings gather home.
Then in our souls there seems to languish
A tender grief that is not woe;
And thoughts that once wrung groans of anguish,
Now cause but some mild tears to flow.

And feelings, once as strong as passions,
Float softly back—a faded dream;
Our own sharp griefs and wild sensations,
The tale of others' sufferings seem.
Oh! when the heart is freshly bleeding,
How longs it for the time to be,
When, through the mist of years receding,
Its woes but live in reverie!

And it can dwell on moonlight glimmer,
On evening shade and loneliness;
And, while the sky grows dim and dimmer,
Feel no untold and strange distress—
Only a deeper impulse given
By lonely hour and darkened room,
To solemn thoughts that soar to Heaven,
Seeking a life and world to come.

JOHN HOME, AUTHOR OF 'DOUGLAS,' IN THE '45.

John Home, with many others, took up arms to oppose Prince Charles and his Highlanders. A band of volunteers, consisting of students and others, inhabitants of Edinburgh, was quickly raised, and in this corps he was chosen lieutenant. In that capacity he waited on General Hawley, who commanded the cavalry, requesting permission for the volunteers to march with the king's troops to Falkirk, where the rebel army lay, which the general readily granted. This is mentioned by himself in his 'History of the Rebellion.' But it was not collegians and burghers of Edinburgh city, nor even the king's troops, that were able to stand against the fury of the bold Highlanders. Prince Charles swept everything before him, and at the battle of Falkirk the royalist army, with the volunteers, was completely routed. General Hawley fled from the field, and with his scattered force betook himself to the old palace of Linlithgow, from which, it is said, he was driven in scorn by the spirited matron, the keeper of the palace, who to his face upbraided him with running away. John Home was supposed to have fallen in the battle. He was taken prisoner by the Highlanders, and, along with Barrow and Bartlet, his fellow-colleagues, was sent captive to the castle of Doune, in Perthshire, from which they contrived to make their escape in the following manner:—During the night, when the prisoners were not very rigidly watched, they tied their bedclothes together, and by the precarious line thus formed, descended one after another from the window of the prison. Barrow, his favourite companion, was the last to commit himself to the rope, which gave way with him, and he was precipitated to the earth, and very seriously injured. John Home, stout and able, took Barrow on his back, as did each of his companions by turns, until they reached a place of safety.—*New Monthly.*

PUNCTUATION.

Cæsar entered on his head, his helmet on his feet, armed sandals upon his brow, there was a cloud in his right hand, his faithful sword in his eye, an angry glare saying nothing, he sat down.

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